

Voltage Controlled Crystal Oscillators

CMOS output

VCXO " G "

CMOS

Thru-Hole

SMD

1.8 V

3.3 V

Min.

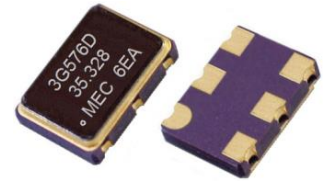
Max.

1.25 MHz

50.0 MHz

Unlike regular clock oscillators that have a fixed output frequency, the output frequency of VCXOs (also known as "frequency modulators") can be tuned $\pm 50 \sim \pm 200$ ppm up or down from the nominal frequency, by varying the control voltage on the voltage control pin. A varactor and a voltage variable capacitance tuning diode, is used to achieve this function.

Applications include (PLL) phase lock loop, SONET / ATM, set-top boxes, MPEG, audio-video modulations, video game consoles and HDTV sets, ONET, 10GbE, Fibre Channel, wireless repeaters, transponders, HDTV, FPGAs, data acquisition.



General Specifications of "G" series, [TA = +25°C, V_{DD} = at specified voltage, Load : 15 pF]

Model	" G " series					
Output Wave Form	CMOS					
Type	SMD Type			Thru - Hole Type		
Pads / Pins	4 pads		6 pads		4 pins	
Models (Dimensions), Unit : mm	G324 (3.2 * 2.5 * 1.0)	G534 (5.0 * 3.2 * 1.2)	G326 (3.2 * 2.5 * 1.0)	G14 (20.2 * 12.8 * 6.0)		
	G42 (11.4 * 9.6 * 2.5)	G43 (11.4 * 9.6 * 3.0)	G536 (5.0 * 3.2 * 1.2)	G8 (12.8 * 12.8 * 5.5)		
Input Voltage (V _{DD})	V _{DD} = +1.8V \pm 5%	V _{DD} = +2.5V \pm 5%	V _{DD} = +3.3V \pm 5%	V _{DD} = +5.0V \pm 10%		
Frequency Range	16.0 MHz ~ 50.0 MHz	1.25 MHz ~ 50.0 MHz	1.25 MHz ~ 50.0 MHz	1.25 MHz ~ 50.0 MHz		
Initial Freq. Accuracy (at 25 °C)	with V _c = 0.9V \pm 0.15V		with V _c = 1.25V \pm 0.2V		with V _c = 1.65V \pm 0.2V	
Output Logic High " 1 "	1.62 V (min.)		2.25 V (min.)		2.97 V (min.)	
Output Logic Low " 0 "	0.183 V (max.)		0.25 V (max.)		0.33 V (max.)	
Frequency Deviation Range	Standard : \pm 80 ppm (min.)		Standard : \pm 80 ppm (min.)		Standard : \pm 80 ppm (min.) ; \pm 200 ppm (min.) available	
Control Voltage Center	0.9 V _{DC}		1.25 V _{DC}		1.65 V _{DC}	
Control Voltage Range	0.0V to 1.8V		0.25 V to 2.25 V		0.3V to 3.0V	
Frequency Stability Codes	Frequency Stability over Operating Temperature Range		\pm 25 ppm	\pm 50 ppm	\pm 100 ppm	If non-standard please enter the desired stability after the " C " or " I " For example : " C20 " : \pm 20 ppm over -10°C to +70°C ; " I30 " : \pm 30 ppm over -40°C to +85°C
	Commercial " C " (-10°C to +70°C)		A	B	C	
	Industrial " I " (-40°C to +85°C)		D	E	F	
Output Load	15 pF					
Rise Time (Tr) / Fall Time (Tf)	6 n sec.(max.) ; 4 n sec.(typical) . Measured between 10% to 90% of wave form (CL=15pF)					
Duty Cycle	50% \pm 10% (standard) , 50% \pm 5% (optional, add " - S " as suffix to part number)					
Integrated Phase Jitter	1.0 ps max. (12 KHz to 20 MHz) .					
Phase Noise [typical of 27.0 MHz] [at 3.3V]	10 Hz	100 Hz	1k Hz	10K Hz	100K Hz	1 MHz
	-40 dBc/Hz	-104 dBc/Hz	-132 dBc/Hz	-147 dBc/Hz	-152 dBc/Hz	-150 dBc/Hz
Start-up Time (Ts)	10 m sec. (max.)					
Current Consumption	10 ~ 45 mA (Frequency dependent) . For 27 MHz: 10 mA typical at +3.3 V _{DD} and 20 mA typical at 5.0 V _{DD} .					
Linearity	6% typical ; 10% max.					
Modulation Bandwidth	10 KHz min. Measured at -3 dB					
Input Impedance	5 M Ω typical					
Slope Polarity (Transfer Function)	Monotonic and Positive : Increasing control voltage always increases output frequency ,					
Aging	\pm 3 ppm per year (max.)					
Output Enable / Disable Function	Enable	When 70% min. of V _{DD} to Enable Output. ; Enable time : 2 ms max.				
	Disable	When 30% max. of V _{DD} to Disable Output. ; Disable time : 100 ns max.				

Outline Dimensions (Unit : mm) , Suggested pad Layout for SMDs

[G324]	[G326]
<p>Pad Connections : Pad 1 : Control Voltage Pad 2 : Ground Pad 3 : Output Pad 4 : Supply Voltage</p>	<p>Pad Connections : Pad 1 : Control Voltage Pad 2 : OE Pad 3 : Ground Pad 4 : Output Pad 5 : No Connection Pad 6 : Supply Voltage</p>
[G534]	[G536]
<p>Pad Connections : Pad 1 : Control Voltage Pad 2 : Ground Pad 3 : Output Pad 4 : Supply Voltage</p>	<p>Pad Connections : Pad 1 : Control Voltage Pad 2 : OE Pad 3 : Ground Pad 4 : Output Pad 5 : No Connection Pad 6 : Supply Voltage</p>
[G576]	[G43]
<p>Pad Connections : Pad 1 : Control Voltage Pad 2 : OE Pad 3 : Ground Pad 4 : Output Pad 5 : No Connection Pad 6 : Supply Voltage</p>	<p>Pad Connections : Pad 1 : Control Voltage (rounded pad) Pad 2 : Ground Pad 3 : Output Pad 4 : Supply voltage</p>
[G14]	[G8]
<p>Pin Connections : Pin 1 : Control Voltage Pin 7 : Ground Pin 8 : Output Pin 14 : Supply voltage</p>	<p>Pin Connections : Pin 1 : Control Voltage Pin 4 : Ground Pin 5 : Output Pin 8 : Supply voltage</p>

Part Number Format and Examples

[1]	[2]	[3]	[4]	[5]	[6]
Supply Voltage	Holder Type	Frequency Stability	Pulling Range	Range Code	Center Frequency

Examples	(1)	5	G14	-	B	-	100	N	-	35.328
	(2)	3	G576	-	D	-	80	T	-	27.000

Ex (1) : **5G14 - B - 100N - 35.328** [+5.0V , full size 4 pin Dip type , ±50ppm (-10°C to 70°C) , pulling : ±100 ppm (min.) , 35.328 MHz]

Ex (1) : **3G576 - D - 80T - 27.000** [+3.3V , G576 type , ±25ppm (-40°C to 85°C) , pulling : ±80 ppm (typical) , 27.000 MHz]

[1]	Supply voltage , " 18 " for +1.8V ; " 25 " for +2.5V ; " 3 " for +3.3V ; " 5 " for +5.0V	
[2]	Holder Type	
[3]	-10°C ~ 70 °C	" A " ± 25ppm ; " B " ± 50ppm ; " C " ± 100ppm ; If non-standard please enter the desired stability after " C " ,for example " C15 " : represents ±15ppm over -10 to +70°C
	-40°C ~ 85 °C	" D " ± 25ppm ; " E " ± 50ppm ; " F " ± 100ppm ; If non-standard please enter the desired stability after " I " ,for example " I20 " : represents ±20ppm over -40 to +85°C
[4]	Frequency Pulling Range	3.3V From ±30ppm ~ ±150ppm , control Voltage range : 0.3V ~ 3.0 ; control voltage center : ± 1.65 V 5.0V From ±70ppm ~ ±200ppm , control Voltage range : 0.5V ~ 4.5V ; control voltage center : ± 2.5 V
	Pulling Range Code	" M " stands for maximum ; " N " stands for minimum ; " T " stands for typical (tolerance is ± 20%)
[6]	Center Frequency in MHz	

